

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) An interconnect network for operation within a communication node, said network comprising:
- a plurality of local line card modules configured to process information received at a plurality of speeds and formatted according to a plurality of protocols,
- a selectable number of local interconnect modules connected to the local line card modules and located proximate to each other and each including local transfer elements for transferring information between a plurality of local I/O channels and for transferring information between said plurality of local I/O channels and a plurality of non-local I/O channels, and
- an expanded interconnect module located proximate to said local interconnect modules and including coupling means for electrically coupling to said non-local I/O channels, and expanded transfer elements for transferring information between said local interconnect modules.
2. (original) An interconnect network according to claim 1 wherein said local transfer elements include means for synchronizing information transferred between each of said local transfer elements.

3. (original) An interconnect network according to claim 1 wherein said expanded transfer elements include means for synchronizing information transferred between said local interconnect modules.

4. (previously presented) An interconnect network according to claim 1 further comprising hot-swap means for changing the selected number of said local interconnect modules included in said interconnect network, while said interconnect network is transferring information.

5. (original) An interconnect network according to claim 1, wherein said local I/O channels have an associated priority and said interconnect network further comprises QoS means for transferring information from one of said local I/O channels having a relatively higher priority in preference to transferring information from one of said local I/O channels having a relatively lower priority.

6. (original) An interconnect network according to claim 1, wherein said local I/O channels have an associated availability for receiving information, and said interconnect network further comprises, status means for maintaining a status indicative of said associated availability for one or more of said local I/O channels, and back pressure means for communicating said status out of said local I/O channels.

7. (original) An interconnect network according to claim 6, wherein said local interconnect modules further include a plurality of memory queues, said plurality of local I/O channels having associated memory queues, and said memory queues having means for storing information received by way of an associated local I/O channel.

8. (original) An interconnect network according to claim 7 further comprising means for setting said status corresponding to a particular one of said local I/O channels to indicate unavailability for receiving information in response to said associated queue of said particular local I/O channel reaching a selectable content level.

9. (previously presented) An interconnect network according to claim 7, wherein information coupled into and out of said network has an associated priority, and said network further comprises means for setting said status corresponding to a particular one of said local I/O channels to indicate unavailability for receiving information having a particular priority, in response to said associated queue reaching a selectable content level.

10. (original) An interconnect network according to claim 6, wherein information transferred through said interconnect modules includes a data portion and a destination address portion, said destination address portion specifying through which one of said local I/O channels said information is to be transferred out of said interconnect network, and said back pressure means is adapted for replacing said destination address portion with said status for communicating said status out of said interconnect network.

11. (original) An interconnect network according to claim 1 further comprising redundancy generating means for generating an alternative version of information being transferred out of said interconnect network through said local I/O channels.

12. (original) An interconnect network according to claim 11, wherein said interconnect network is adapted for transferring information as information cells, each of said cells including groups of information words, and wherein said redundancy generating means is adapted for causing said alternative version of said information to be a bit-by-bit "exclusive-or" between pairs of said groups of information words included in an information cell.

13. (original) An interconnect network according to claim 1, wherein said interconnect network is adapted for transferring information as information cells, and said local transfer elements further include means for substantially simultaneously transferring a plurality of said information cells out of said local interconnect modules.

14. (original) An interconnect network according to claim 13 further comprising a memory queue for intermediately storing said plurality of information cells to be transferred, and queue detection means for detecting when a selected number of said information cells are stored in said memory queue, wherein said local transfer elements are adapted for transferring said plurality of information cells in response to said queue detection means detecting storing of said selected number of said information cells.

15. (original) An interconnect network according to claim 1, wherein said interconnect network is adapted for transferring information as information cells, and said expanded transfer elements further include means for substantially simultaneously transferring a plurality of said information cells out of said expanded interconnect module.

16. (original) An interconnect network according to claim 15 further comprising a memory queue for intermediately storing said plurality of information cells to be transferred, and queue detection means for detecting when a selected number of said information cells are stored in said memory queue, wherein said expanded transfer elements are adapted for transferring said plurality of information cells in response to said queue detection means detecting storage of said selected number of said information cells.


17. (previously presented) An interconnect network according to claim 1, wherein said local I/O channels have associated destination addresses, and said expanded interconnect module includes:

array means for storing path information representative of a plurality of paths through said expanded transfer elements over which information from a first local I/O channel of one of said local interconnect modules can be transferred to a second local I/O channel of another one of said local interconnect modules, and

index means for selecting appropriate path information from said array means, at least partially in response to a destination address of said second local I/O channel.

18. (original) An interconnect network according to claim 1, wherein said local transfer elements and said expanded transfer elements are substantially identical.

19. (previously presented) An interconnect network according to claim 18, wherein said local and said expanded transfer elements each includes mode control means for selecting whether said transfer element is to be employed in one of said local interconnect modules or in said expanded interconnect module.

 20. (previously presented) A dynamically scalable communication interconnect comprising:

a selectable number of local interconnects, each including associated transfer elements for transferring information through said associated local interconnect, and

a single expanded interconnect, including elements for coupling to said selected number of local interconnects, and expanded transfer elements for transferring information between said local interconnects, wherein said selected number of local interconnects can be varied while said expanded interconnect is transferring information.

21. (previously presented) An interconnect network for operation within a communication node, said network comprising:

a selectable number of local interconnect modules each including local transfer elements for transferring information between a plurality of local I/O channels and for transferring

information between said plurality of local I/O channels and a plurality of non-local I/O channels, wherein said interconnect network is adapted for transferring information as information cells, each of said cells including groups of information words,

an expanded interconnect module including coupling means for electrically coupling to said non-local I/O channels, and expanded transfer elements for transferring information between said local interconnect modules, and

redundancy generating means for generating an alternative version of information being transferred out of said interconnect network by generating a bit-by-bit "exclusive-or" between pairs of said groups of information words included in an information cell.

22. (previously presented) An interconnect network for operation within a communication node, said network comprising:

a selectable number of local interconnect modules each including local transfer elements for transferring information between a plurality of local I/O channels and for transferring information between said plurality of local I/O channels and a plurality of non-local I/O channels,

an expanded interconnect module including coupling means for electrically coupling to said non-local I/O channels, and expanded transfer elements for transferring information between said local interconnect modules, and

quality of service means for differentiating between information coupled into said local I/O channels based on an associated priority of said information, and for indicating unavailability

for receiving information having a particular associated priority on one or more of said local I/O channels.

23. (previously presented) An interconnect network for operation within a communication node, said network comprising:

a selectable number of local interconnect modules each including local transfer elements for transferring information between a plurality of local I/O channels and for transferring information between said plurality of local I/O channels and a plurality of non-local I/O channels, and

at least one expanded interconnect module including coupling means for electrically coupling to said non-local I/O channels, and expanded transfer elements for transferring information between said local interconnect modules,

wherein said interconnect network is adapted for transferring information as information cells, and said local and expanded transfer elements further include clumping means for substantially simultaneously transferring a plurality of said information cells.

24. (currently amended) A dynamically bandwidth scalable communication node comprising:

a selectable number of local communication modules that provide dynamic bandwidth scalability to the communication node, each of said local communication modules including a plurality of external communication channels for coupling information into and out of said node, a plurality of internal communication channels for coupling information within said node, and

means for coupling information between said external communication channels and said internal communication channels,

a local interconnect module, associated with each of said selectable number of local communication modules, and including local transfer elements for transferring information between said plurality of internal communication channels of said associated local communication module, and

an expanded interconnect module, including means for coupling to each of said local interconnect modules, and expanded transfer elements for transferring information between said local interconnect modules, thereby enabling transfer of information between external communication channels of different ones of said selectable number of local communication modules.

25. (currently amended) A dynamically bandwidth scalable communication node having a modular construction and comprising:

a selectable number of local communication modules that provide dynamic bandwidth scalability to the communication node, each of the local communication modules including a plurality of communication channels for transferring information into and out of said node,

a local interconnect module coupled to each of said local communication modules and including local transfer elements for transferring information between said plurality of communication channels, and

an expanded interconnect module including elements for coupling to a plurality of said local interconnect modules, and transfer elements for transferring information between said

plurality of local interconnect modules, wherein information can be transferred between communication channels of different ones of said local communication modules.

26. (currently amended) A method for transferring information signals between I/O channels of an interconnect network adapted for operation in a communication node, said method comprising:

*31
part.* coupling information to I/O channels of one or more proximately located local interconnect modules,

transferring information between I/O channels of a particular one of the local interconnect modules in response to a local destination address,

transferring information from one of said local interconnect modules to an I/O channel of a proximately located expanded interconnect module in response to a non-local destination address,

transferring information from said expanded interconnect module to another particular one of said local interconnect modules in response to said non-local destination address, and

scaling bandwidth of said interconnect network by including a selected selectable number of said local interconnect modules in said plurality of local interconnect modules.
